(Final: *Sedum integrifolium* ssp. *leedyi* (Rosend. and Moore) Clausen, Leedy's roseroot—Threatened).

Dated: April 7, 1992.

Richard N. Smith,

Acting Director, U.S. Fish and Wildlife Service.

[FR Doc. 92-9174 Filed 4-21-92; 8:45 am]

BILLING CODE 4310-55-M

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 227

[Docket No. 910647-2043]

Endangered and Threatened Species; Threatened Status for Snake River Spring/Summer Chinook Salmon, Threatened Status for Snake River Fall Chinook Salmon

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Final rule.

SUMMARY: NMFS has determined that Snake River spring/summer chinook

salmon (*Oncorhynchus tshawytscha*) and Snake River fall chinook salmon are "species" under the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.* (ESA), and should be listed as threatened. Snake River spring/summer chinook salmon have declined to low numbers and are dispersed over a large, complex river system. Snake River fall chinook salmon have substantially declined in abundance and are currently limited to a fraction of their former range. Hydropower development, water withdrawal and diversions, water storage, harvest, and inadequate regulatory mechanisms are factors contributing to the decline of these species and represent continued threats to their existence.

In a separate rulemaking, the U.S. Fish and Wildlife Service (FWS), Department of the Interior, will add the Snake River spring/summer chinook salmon and the Snake River fall chinook salmon to the U.S. List of Endangered and Threatened Wildlife.

EFFECTIVE DATE: May 22, 1992.

FOR FURTHER INFORMATION CONTACT: Rob Jones, NMFS, Protected Species Program, Environmental and Technical Services Division, 911 NE. 11th Avenue, room 620, Portland, OR 97232, telephone (503) 230-5429 or FTS-429-5429, or Patricia Montanio, NMFS, 1335 East-West Highway, Silver Spring, MD 20910, telephone (301) 713-2322.

SUPPLEMENTARY INFORMATION:

Background

On June 7, 1990, NMFS received petitions from Oregon Trout, with co-petitioners Oregon Natural Resources Council, the Northwest Environmental Defense Center, American Rivers, and the Idaho and Oregon Chapters of American Fisheries Society, to list Snake River spring chinook salmon, Snake River summer chinook salmon and Snake River fall chinook salmon under the ESA. NMFS published a notice on September 11, 1990 (55 FR 37342), announcing that the petitions presented substantial scientific information indicating that listings may be warranted and initiated status reviews by requesting information from the public.

NMFS prepared the following technical papers: Status Reviews for Snake River Spring and Summer Chinook Salmon (Matthews and Waples 1991) and for Snake River Fall Chinook Salmon (Waples, Jones, Beckman, and Swan 1991); Supplements to the Notices of Determination (factors reports) for Snake River Spring/Summer Chinook Salmon Under the Endangered Species Act (ETSD 1991) and for Snake River Fall Chinook Salmon Under the Endangered Species Act (ETSD 1991). NMFS published proposed rules (June 27, 1991; 56 FR 29542 and 29547) for listing Snake River spring/summer chinook salmon and Snake River fall chinook salmon as threatened species and requested comments. These final rules are based on the status reviews, factors reports, and on comments received.

Summary of Comments

NMFS received 122 comments on the proposed rule for the Snake River spring/summer chinook salmon, and 119 comments on the proposed rule for Snake River fall chinook salmon. NMFS considered all comments received, including testimony from four public hearings on the proposed rules. The majority of comments relevant to listing determinations under the ESA asserted that Snake River spring and summer chinook salmon are separate species under the ESA, and that Snake River fall chinook salmon should be listed as endangered rather than threatened. Many commenters provided information pertaining to research needs, critical habitat and recovery planning. Although this information may be useful in the development of any recovery plan, it will not be addressed here. Information pertinent to each listing decision has been incorporated here. A summary of major comments relevant to the listing determinations are presented below.

A. General Comments

Some commenters opposed the NMFS interim policy for defining populations of Pacific salmon as "species" under the ESA. Others supported the policy. Some stated that species determinations should afford greater consideration to life history characteristics and the ecological significance of different population units. NMFS considered and addressed these comments in publishing its final policy on applying the definition of "species" under the ESA to Pacific salmon (November 20, 1991; 56 FR 58612). Further guidance on the application of this policy is contained in the NMFS paper "Pacific Salmon and the Definition of 'Species' under the Endangered Species Act" (Waples In press), which is available upon request (see FOR FURTHER INFORMATION CONTACT).

B. Consideration of Spring and Summer Chinook Salmon as a Single Species

Some commenters supported the determination to consider Snake River spring and summer chinook salmon a single "species" under the ESA. Others stated that Snake River spring and summer chinook salmon should each be considered a species for one or more of the following reasons:

(1) Each is managed as a separate unit;

(2) Apparent genetic similarities (based on current technology) do not prove that important adaptive differences do not exist;

(3) Life history characteristics differ between the two forms; and

(4) Sufficient data are unavailable to consider them a single species.

Distinct populations under the ESA may correspond to existing management units, but this will not always be the case. To the extent that political, economic, practical, or other nonbiological considerations affect the delineation of management units, such units may differ from those the ESA is intended to conserve. NMFS agrees that the failure to find genetic differences using protein electrophoresis does not prove adaptive differences do not exist. However, if available genetic techniques fail to distinguish distinct populations, then positive evidence to support population distinctness must be found elsewhere. This result places a greater burden of proof on other evidence.

Differences in life history characteristics between Snake River spring and summer chinook salmon are not as definitive as some commenters suggest. Collectively, the two forms use a diversity of run-timing and life history strategies, but the distribution of such characteristics is not discrete between the two forms. Furthermore, local biologists often cannot agree on which type is in a given stream; for some streams, classification of fish, as spring/summer, spring or summer, remains uncertain. Some streams originally thought to have spring-run fish (e.g., the Imnaha River) are now considered to have summer or spring/summer chinook salmon. Thus, even if NMFS were to recognize the two forms as separate evolutionily significant units (ESUs), the demarcations of the ESUs would be uncertain. Given this uncertainty, NMFS believes that the most biologically sound approach is to afford protection to the entire spectrum of spring/summer life history forms as a single ESU, at the same time recognizing the importance of conserving the diversity within the ESU (in run-timing, life history characteristics, ecological and geographical representation, etc.).

Several commenters stated that a self-sustaining population of spring chinook salmon exists in the Clearwater River drainage, a subbasin of the Snake River, and should be included in the ESU.

Based on available information, it appears that for the period 1927 through 1940, indigenous chinook salmon populations were precluded from escaping into the Clearwater River by Lewiston Dam. Subsequent efforts to restore these populations included the transfer of eggs from the Salmon River and massive outplants of juveniles from hatcheries throughout the Columbia River Basin. NMFS does not consider fish of mixed nonnative origin part of the ESU for Snake River spring/summer chinook salmon (Matthews and Waples 1991).

C. Application of Models to Determine Species Status

Some commenters stated that the model used in defining threatened or endangered status for spring/summer and fall chinook salmon was inappropriate. Others felt the model was applicable but need refinement. Still others stated that the model was accurate and used appropriately. NMFS believes that, because of the difficulty in modelling the complex life history patterns of Pacific salmon, it is inappropriate at the present time to place complete reliance on any model currently available. NMFS believes that model results should be used together with all other relevant information and factors in reaching determinations regarding the listing or delisting of species under the ESA.

D. Status of Snake River Spring/Summer Chinook Salmon

Some commenters stated that Snake River spring/summer chinook salmon should be listed as endangered. Others supported a threatened listing. NMFS has reviewed available scientific information, including 1991 returns to the Snake River and spawning ground observations, and has determined that Snake River spring/summer chinook salmon should be listed as threatened.

E. Status of Fall Chinook Salmon

Many commenters stated that Snake River fall chinook salmon should be listed as endangered rather than threatened. The threatened species designation in the proposed rule was based on an assessment of the best available scientific and commercial information, taking account of efforts to protect the species. In making its final determination, NMFS considered the 1991 estimated escapement of 318 wild, adult fall chinook salmon above Lower Granite Dam. This represents a considerable increase over the 1990 estimated escapement of 78 adults. Further, starting in 1991, all hatchery-produced fall chinook from the Snake and Umatilla Rivers were tagged in order to separate adult hatchery and wild fish at Snake River dams. Tagged hatchery fish will be prevented from ascending further upstream, while wild fish will be allowed to proceed. This measure will be significant in reducing any introgression of the Snake River gene pool with Columbia and Snake River hatchery-produced fall chinook salmon. Furthermore, at Lyons Ferry Fish Hatchery, the practice of taking wild fish for broodstock has been stopped. Despite the need for caution in using the most recent year's figure in determining a trend, this increase approaching previous escapement levels typical of the 1980s may be attributable, at least in part, to the protective measures already undertaken. Consequently, NMFS is issuing a final determination to list the Snake River fall chinook salmon as threatened under the ESA.

F. Juvenile Migration

Several commenters stated that hydropower construction and operation should be described as the primary factor for the decline of Snake River spring/summer and fall chinook salmon. Others thought the hydropower system was attributed excessive responsibility for these declines. It was not NMFS' intention to rank the various factors for decline. Rather, the proposed rule attempted to identify those factors responsible for the decline of these species.

One commenter stated that hydropower dams have not contributed to the delay of juvenile fish migrants. NMFS does not agree. There is ample evidence that development and operation of the hydroelectric system has reduced juvenile fish travel speed and survival (CBFWA 1991; Raymond 1979).

Commenters generally agreed that flows in the Snake River at Lower Granite Dam up to 85 thousand cubic feet per second (kcfs) (2.41 thousand cubic meters per second (kcms)) materially improve the survival of juvenile fish migrating during the spring. Most commenters also agreed that there appears to be additional survival benefits above 85 kcfs (2.41 kcms), but commenters differed markedly on the significance of the additional benefit. One commenter suggested that flows in excess of 85 kcfs (2.41 kcms) in the Snake River and 175–180 kcfs (4.96–5.10 kcms) downstream in the Columbia River are not needed to assist juvenile fish migration. Other commenters supported the need for flows up to 140 kcfs (3.96 kcms) in the Snake River and 300 kcfs (8.50 kcms) in the lower Columbia River. NMFS believes there is a relationship between increased flows, decreased fish travel time, and increased survival, but the incremental improvement in survival would be reduced at the upper end of the flow range.

One commenter stated that photoperiod and water temperature are the primary factors controlling the onset of juvenile salmon smoltification and migration to the sea. Raymond (1979) reported that juvenile migrations were related more closely to sudden rises in water temperature than to an increase in river discharge. Hoar (1988) and Mains and Smith (1964) note that factors such as photoperiod and water temperature do play a significant role in smoltification, but also indicate a stimulus such as a sudden increase in river discharge is necessary to initiate downstream migration. A discussion of the biology and physiology of factors influencing fish migratory behavior is provided in CBFWA (1991).

One commenter indicated that water is not always available to fulfill system operation objectives for hydropower production, flood control, etc., in the Snake and Columbia Rivers. If water in excess of these objectives exists, then the water budget is satisfied. NMFS believes that the water budget, as planned by the NWPPC, has not been implemented in the manner it was intended. Other system operations are often addressed at the expense of adverse limitations placed on the water budget.

One commenter noted that juvenile fish survival estimates for different spill levels at Lower Monumental Dam on the Snake River as presented in the factors report for Snake River fall chinook salmon were incorrect. NMFS concurs with the commenter. Juvenile fish survival at a facility lacking a screened bypass (Lower Monumental Dam) is estimated to have increased from a prespill level of 85 percent up to 91 percent (with spill), indicating a 6-percent increase. At projects with an ice and trash sluiceway, survival is estimated to have increased from a prespill level of 90 percent up to 91–92 percent (with spill).

Some commenters stated that the quantity of water diverted from the river by the Columbia Basin Project (CBP) was insignificant and did not impact fish. NMFS notes that the volume of water diverted by the CBP (2.3 million acre feet (MAF)) is two-thirds of the Columbia River water budget and is nearly twice the volume of the Snake River water budget. NMFS does not concur that CBP diversion is insignificant, and believes that such diversion could have significant negative impacts upon the downstream migration of Snake River spring/summer and fall chinook salmon. Other commenters expressed concern about perceived impacts on fishery resources resulting from the expansion of the CBP. NMFS believes that existing water withdrawals in the Columbia River Basin impose impacts on Snake River spring/summer and fall chinook salmon. Proposed expansions of such withdrawals pose additional impacts.

One commenter noted that upstream water use and storage in Idaho had little effect on juvenile migration prior to construction of the mainstem Snake River dams. The factors report only summarized existing information on water storage and withdrawals. The significance of water storage and withdrawals relative to other factors has yet to be determined, and will be reviewed further during recovery planning and through consultations on specific Federal actions that may affect listed populations.

Some commenters were critical of the ranges and estimates of specific mortality factors presented by NMFS. NMFS is aware that other estimates exist for mortality of juvenile and adult fish migrating through the mainstream Columbia and Lower Snake River dams. NMFS believes that the best available scientific information has been considered in these determinations. All data will again be considered during critical habitat determinations, consultations, and recovery planning.

Several commenters questioned the effectiveness of juvenile bypass systems. While NMFS believes that bypass systems have great potential for reducing juvenile mortality at dams, NMFS also recognizes that ongoing research and development programs are necessary before their full potential can be realized. Concluding that bypasses are detrimental based on the preliminary results of one study is inappropriate.

Some commenters noted that predation was not mentioned as a specific cause of decline. Predation as a factor in the decline of Snake River spring/summer and fall chinook salmon was addressed in the proposed rule and factors report for each species. Substantial increases in predator abundance have been documented within the range of these fish. Although available information indicates that predators consume or injure these species, the extent to which predation is a factor causing the decline of Snake River spring/summer and fall chinook salmon is unknown.

Some commenters stated that increased residence time had little effect on the level of predation. Recent research (Poe and Rieman 1988, Vigg and Burley 1989) indicates that the consumption rate of predators increases with water temperature. Water temperature typically increases rapidly during the juvenile migration season, with fall chinook salmon outmigrants facing the highest temperatures. Therefore, as fish take longer to move through the migration route, they are exposed to predators for a longer duration and are subjected to increased predation rates as temperature rise.

G. Harvest of Spring/Summer Chinook Salmon

Some commenters felt that the ocean harvest of Snake River spring/summer chinook salmon was a significant factor in the decline of this population. Another commenter stated that harvest information was only available for coded wire tagged fish produced in hatcheries, and that hatchery fish were not representative of the wild population. Several commenters stated that the combination of low survival rates to recruitment and low sampling rates of fisheries resulted in inadequate estimates of ocean harvest. NMFS encourages efforts to provide additional information on any harvest of Snake River spring/summer chinook salmon. Based on the best available information (see factors report), it appears that relatively small numbers of these fish are harvested in ocean fisheries.

H. Harvest of Fall Chinook Salmon

Several commenters responded that the proposed rule should have clearly indicated that historical harvest rates did contribute to the decline of Snake River fall chinook salmon and that current harvest rates are higher than the population can sustain. NMFS previously concluded (see factors report) that Snake River fall chinook salmon historically were capable of sustaining high harvest rates, but following the degradation of the Snake and Columbia River ecosystems, harvest rates may have contributed to the further decline of the population. Clearly, previous harvest rates were high and could not be sustained in conjunction with other factors affecting the population.

Additional data received since the publication of the factors report allows for the calculation of the simple total harvest rate for Snake River fall chinook salmon (total harvest rate not including inter-dam loss), at an average of 69 percent (based on returns from 1984 and 1985 broods). This harvest rate may also be higher than the population can sustain.

I. Scientific Utilization of Spring/Summer and Fall Chinook Salmon

One commenter stated that NMFS reporting of the scientific utilization of Snake River spring/summer and fall chinook salmon may have been incorrect. In response to this comment, NMFS has determined that the factors report should have read "the number of spring, summer, and fall chinook combined, that were handled at the five Snake River sites in 1988, 1989 and 1990, was 208,175; 348,256; and 199,814, respectively."

J. Artificial Propagation as a Factor for Decline of Spring/Summer Chinook Salmon

Some commenters stated that artificial propagation has imposed selection effects on wild populations by broodstock collection practices. Others indicated that NMFS did not adequately describe the role of hatchery practices as a factor in the decline of Snake River spring/summer chinook salmon. Large-scale hatchery operations began only after Snake River spring/summer chinook salmon populations had reached record low numbers. NMFS believes, however, that hatchery operations have contributed to the further decline of wild Snake River spring/summer chinook salmon through the taking of fish for hatchery broodstock, behavioral and genetic interaction, competition, predation, and the spread of disease. Some commenters stated that artificial propagation resulted in the over-harvest of wild fish that mingle with more abundant hatchery returns. NMFS acknowledges that historical harvest rates contributed to the species' decline, but harvest rates since spring/summer chinook hatcheries began operation have been relatively low. There is no evidence to indicate that mixed stock fisheries based on harvestable chinook salmon produced in hatcheries have resulted in the over-harvest of wild Snake River spring/summer chinook salmon.

K. Artificial Propagation as a Factor for Decline of Fall Chinook Salmon

Some commenters stated that the proposed rule did not describe in sufficient detail the Snake River fall chinook salmon egg bank program. The proposed rule itself summarized the results of this program in the section "Summary of Factors Affecting the Species." Extensive discussion of the program was provided in the factors report and status review.

Some commenters stated that the production of upriver fall chinook salmon in Columbia River hatcheries results in the overharvest of Snake River fall chinook salmon. Excessive harvest of wild Snake River fall chinook salmon may occur when these fish mingle with the more abundant hatchery and wild fall chinook salmon returning to the upper Columbia River. NMFS recognizes this potential for overharvest, and included harvest management as an available conservation measure in the proposed determination to list Snake River fall chinook salmon.

Some commenters stated that the collection of wild Snake River fall chinook salmon for hatchery broodstock was a factor in the species' decline. Other commenters stated that efforts to maintain the integrity of Snake River fall chinook salmon at Lyons Ferry Hatchery were being compromised by the use of fish from other locations as broodstock. As stated in the factors report, the collection of Snake River fall chinook salmon for hatchery broodstock (egg bank program) only began following the decline of the population to very low numbers. NMFS noted in the proposed rule that hatchery fall chinook salmon have strayed into the Snake River in increasing numbers, resulting in some introgression of upper Columbia River genes into Lyons Ferry Hatchery fall chinook salmon. The Washington State Department of Fisheries (WDF) has implemented measures to minimize potential impacts of straying on Lyons Ferry Hatchery broodstock (WDF 1991a). Only progeny from confirmed Lyons Ferry Hatchery adults were used for broodstock purposes in 1990 and 1991.

One commenter stated that large numbers of chinook salmon released from lower Columbia River hatcheries compete with Snake River fall chinook salmon for food and habitat in the Columbia River estuary, and that this practice is a factor in the species' decline. NMFS concurs that competition for limited food and habitat may result from large numbers of fall chinook salmon released from hatcheries annually and, therefore, contribute further to the decline of wild Snake River fall chinook salmon.

One commenter stated that the transmission of disease from hatchery-released fish was a factor in the decline of the wild Snake River fall chinook salmon. NMFS could find no evidence of this.

L. Fish Transportation

Commenters expressed conflicting views on whether the Juvenile Fish Transportation Program (bypassing mainstem Snake and Columbia River hydroelectric facilities via barges and trucking) was beneficial to Snake River spring/summer and fall chinook salmon. Some commenters felt that such benefits were understated or ignored. Others felt that transportation may provide negative or at least uncertain benefits and should be reevaluated.

NMFS believes that available biological information indicates there is substantial benefit to transporting Snake River spring/summer and fall chinook salmon. For Snake River spring/summer chinook salmon and upper Columbia River fall chinook salmon, there is substantial evidence that transported fish return as adults at a higher rate than fish allowed to migrate naturally through adverse in-river conditions (COE 1985; Matthews, Harmon, Achord, Johnson and Kubin 1990).

Some commenters suggested that juvenile chinook be allowed to migrate naturally in-river to minimize handling and stress of passage through juvenile collection facilities. In past years when daily average flows in the Snake River exceeded 100 kcfs (2.83 kcms), juvenile chinook salmon collected at Little Goose Dam on the Snake River were bypassed back to the river and allowed to migrate naturally. Juveniles collected at Lower Granite Dam were transported under all conditions.

A commenter stated that flow was irrelevant for many Snake River spring/summer chinook salmon "because most fish are collected at upriver dams and transported through the system." Average fish guidance efficiency for spring/summer chinook salmon at Snake River collector dams is approximately 50 to 70 percent per dam; therefore, 30 to 50 percent of those fish arriving at dams are not collected. Juveniles surviving direct and indirect turbine passage mortality migrate naturally, regardless of river flow condition.

M. Management by State and Federal Agencies

Some commenters stated that NMFS ignored mention of general mismanagement of fisheries by state and Federal agencies as a factor for decline of Snake River spring/summer and fall chinook salmon. The adequacy of existing regulatory mechanisms is summarized in this rule document (see Summary of Factors Affecting the Species), and discussed extensively in the factors reports.

Some commenters stated that decisions of Federal hydroelectric operators and regulators not to implement recommendations of fish and wildlife agencies were not factors contributing to the decline of Snake River spring/summer chinook salmon. One commenter cited several instances to which "fish measures recommended by 'fish' entities" are still not adequate. The standard by which recommendations of fishery agencies have been judged inadequate in this comment is unclear. NMFS believes that discretionary decisions by Federal hydroelectric project operators and regulators have contributed to the decline of Snake River spring/summer chinook salmon.

N. Other Impacts to Habitat

Some commenters stated that habitat impacts resulting from livestock grazing, logging, road building, mining and irrigation withdrawals were understated. Others stated that the proposed rule placed too much emphasis on these actions as factors in the decline of each species. NMFS did not intend that the proposed rules establish relative responsibility of factors for decline of the species. NMFS has determined that Snake River spring/summer chinook salmon are a threatened species and Snake River fall chinook salmon are a threatened species because of these and other factors.

O. Available Conservation Measures

Commenters recommended implementation of a number of measures including: (1) Modifications to the juvenile fish transportation program; (2) shifting flood control responsibilities to provide water for downstream migrants; (3) Snake River reservoir drawdown; (4) alternative harvest management; (5) irrigation screening; (6) tagging of hatchery fish; and (7) various research activities to conserve Snake River spring/summer and fall chinook salmon. These measures and others will be addressed during section 7 consultations and recovery planning.

Consideration as "Species" Under the ESA

To consider the Snake River spring/summer and fall chinook salmon for listing, they must qualify as "species" under the ESA. The ESA defines a "species" to include any "distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." The NMFS final policy on how it will apply the ESA "species" definition in evaluating Pacific salmon was published on November 20, 1991 (56 FR 58612). A salmon population will be considered distinct, and hence a species under the ESA, if it represents an ESU of the biological species. The population must satisfy two criteria to be considered an ESU: (1) It must be substantially reproductively isolated from other nonspecific population units; and (2) it must represent an important component in the evolutionary legacy of the biological species. Further guidance on the application of this policy is contained in the NMFS paper "Pacific Salmon and the Definition of 'Species' under the Endangered Species Act" (Waples In press).

Spring-, summer- and fall-run salmon have traditionally been considered separate runs based on differences in timing of adult returns to spawning areas. In determining whether Snake River spring, summer, and fall chinook salmon should be considered together or separately as species under the ESA, it is necessary to determine whether fish with different run-timing are reproductively isolated. Schreck *et al.* (1986) and Utter *et al.* (1989) suggest that spring, summer and fall-run chinook salmon probably do not represent separate lineages in the Pacific Northwest. They found that, in general, geographic proximity was a more important factor than run-timing in predicting similarities between stocks. This suggests that run-time differences may have evolved independently following colonization of a new area (Matthews and Waples 1991). However, in spite of this general pattern, there are pronounced genetic (Schreck *et al.* 1986; Utter *et al.* 1989) and life history (Matthews and Waples 1991) differences between fall chinook salmon and the other two forms (spring and summer chinook salmon) in the Snake River.

Snake River Spring/Summer Chinook Salmon as a Species

Even though some spring/summer chinook salmon populations appear to be substantially reproductively isolated, this isolation may result from geographical separation as much as temporal differences in spawn timing. Furthermore, reproductive isolation could be as strong (or stronger) between populations with similar run-timing from different drainages.

The key to understanding the evolutionary significance of spring and summer chinook salmon run-timing is the relationship between the two forms in streams where they occur together (Matthews and Waples 1991). Matthews and Waples (1991) discuss two hypotheses that could explain the presence of both forms in the same stream: (1) The two forms arose from a single colonization event by one of the forms, or (2) spring and summer-run fish are two independent evolutionary units, and the reason both forms are found in the same stream is that, in these cases, two colonization events occurred. Presently, there is insufficient information to determine which of these hypotheses is true, or whether hypothesis 1 is true in some cases and hypothesis 2 is true in others.

Because of compelling evidence that Snake River spring/summer chinook salmon are reproductively isolated from fall chinook salmon, and considering the possibility of substantial levels of gene flow between the spring and summer chinook salmon forms in at least some localities, NMFS has determined that for the purposes of the ESA, Snake River spring/summer chinook salmon should be considered together as a single unit. This decision, however, does not imply that the two forms are not both important; the broad distribution of these fish with a spectrum of run and spawn timing is crucial to the long-term health and viability of Snake River chinook salmon.

To determine whether Snake River spring/summer chinook salmon consist of one or multiple units, the criteria of reproductive isolation and substantial contribution to ecological/genetic diversity of the biological species are important. The most compelling evidence of an anadromous salmon population's reproductive isolation is the characteristic of individuals to return to their natal streams to reproduce. This is particularly true for upriver populations, such as Snake River spring/summer chinook salmon (Chapman *et al.* 1991). These fish travel great distances (between 324 miles (522 km) and 900 miles (1450 km)) in fresh water to reach their natal streams. All available information suggests that if an adult spring or summer chinook salmon enters the Columbia River, it will likely spawn in its natal stream (Matthews and Waples 1991).

Available information also indicates that Snake River spring/summer chinook salmon are ecologically/genetically distinct. Recent studies (Schreck 1986; Waples *et al.* 1990) examining the genetic relationships among Columbia River Basin chinook salmon populations indicate that there is little, if any, genetic exchange between Snake River spring/summer chinook salmon and lower and mid-Columbia River spring chinook salmon and upper Columbia River summer chinook salmon (Matthews and Waples 1991). Ecologically, the Snake River drainage differs from the Coastal and Cascade Ranges by older, eroded mountains with high plateaus containing many small streams meandering through long meadows. Much of the area is composed of batholithic granite that is prone to erosion, creating relatively turbid water with high alkalinity and pH in comparison to the Columbia River (Sylvester 1959, in Matthews and Waples 1991). The region is arid with warm summers, resulting in higher annual temperatures than in many other salmon production areas in the Pacific Northwest. In addition, the Salmon River alone once produced nearly half of the spring/summer chinook salmon returning to the Columbia River (Matthews and Waples 1991).

The fact that juvenile migrational behavior is the same for spring and summer chinook salmon in the Snake River, but different from those forms in the upper Columbia River, strongly implies ecological/genetic differences between the regions (Matthews and Waples 1991). The precision required to migrate great distances from different natal streams and tributaries and return with high fidelity and exact timing to start the next generation 1 to 3 years later speaks of biological entities that are highly adapted to their particular environments. Protein electrophoresis also shows clear differences between Snake River spring/summer chinook salmon and other chinook salmon populations in the Columbia River Basin (Matthews and Waples 1991).

Snake River spring/summer chinook salmon as a group meet both criteria to be considered a "species" under the ESA; they are strongly isolated reproductively from other conspecific population units and they contribute substantially to the ecological/genetic diversity of the biological species. While more than one ESU may exist within the Snake River Basin, the data presently available are not sufficient to clearly demonstrate the existence of multiple ESUs, or to define their boundaries. Thus, NMFS believes that the Snake River spring/summer chinook should be considered as one ESU of the biological species *O. tshawytscha*. NMFS recognizes that there is evidence of important differences between some population segments within the Snake River Basin; therefore, NMFS emphasizes that the ESU's viability is strongly dependent on the continued existence of healthy populations distributed throughout the Snake River Basin. As more data become available, smaller ESUs within the Snake River ESU may be defined.

Snake River Fall Chinook Salmon as a Species

Available evidence indicates that, through the early 1980s, Snake River fall chinook salmon met both criteria necessary to be an ESU: Substantial reproductive isolation and ecological/genetic distinctness. In addition, the very low incidence of natural straying of upper Columbia River fall chinook salmon (McIssac and Quinn 1988) and consistent genetic differences between upper Columbia River and Snake River fall chinook salmon demonstrate significant, long-term reproductive isolation between these groups.

Available information indicates that Snake River fall chinook salmon satisfy the second criterion, which stipulates that a population must represent an important component in the evolutionary legacy of the biological species to be considered an ESU. Historically, the Columbia River system was the largest producer of chinook salmon in the world. Prior to 1960, the Snake River was the most important production area for fall chinook salmon in the Columbia River system (Bureau of Commercial Fisheries and Bureau of Sport Fisheries and Wildlife 1964). Unique ecological features of the Snake River Basin, characteristic freshwater habitats, and contrasting ocean distribution patterns and genetic differences (relative to upper Columbia River fall chinook salmon) are evidence of ecological/genetic distinctness and the importance of the Snake River fall chinook salmon in the legacy of the biological species.

Evidence of introgression of upper Columbia River genes into Lyons Ferry Hatchery, a facility developed with the intent of conserving the genetic integrity of Snake River fall chinook salmon, has prompted concern regarding the status of the Snake River fall chinook salmon ESU. However, because (1) Snake River fall chinook salmon represented an ESU prior to these straying events, (2) significant straying of hatchery-reared Upper Columbia River fall chinook salmon has occurred only within the last generation, and (3) direct evidence of genetic change in wild Snake River fall chinook salmon is lacking, NMFS concludes, based on the weight of existing information, that Snake River fall chinook salmon still represent an ESU.

Status of Snake River Spring/Summer Chinook Salmon

Historically, it is estimated that 44 percent of the combined Columbia River spring and summer chinook salmon returned to the Salmon River subbasin of the Snake River system (Fulton 1968). Matthews and Waples (1991) combined a number of estimates (Fulton 1968; Chapman 1986; CBFWA 1990) and concluded that in some years during the late 1800s, the Snake River produced in excess of 1.5 million adult spring/summer chinook salmon. By the 1950s, the abundance of adult spring/summer chinook salmon had declined to an average of 125,000 per year (Fulton 1968). Since then, counts at Snake River dams have declined considerably, from an average at Ice Harbor Dam of 58,798 fish during 1962 through 1970, to a low of 11,855 in 1979. Counts gradually increased over the next 9 years, peaking at 42,184 in 1988. However, in 1989, 1990 and 1991, counts dropped to 21,244, 26,524 and 17,149 fish, respectively (FPC 1991). These numbers are illustrative of population trends, but are not indicative of wild fish abundance, because adult counts at dams since 1967 have been confounded by returns of hatchery-origin fish.

Matthews and Waples (1991) estimated the number of wild fish passing the uppermost Snake River dam (1968—Ice Harbor Dam; 1969—Lower Monumental Dam; 1970–74—Little Goose Dam; and 1975–90—Granite Dam), utilizing an expansion factor based on adult counts at the uppermost dam and redd counts in index areas prior to hatchery influence. Redd counts are available since 1957 from all Snake River index areas except the Grande Ronde River, where surveys began in 1964. Using this method, the estimated number of wild adult spring/summer chinook salmon passing over Lower Granite Dam averaged 9,674 fish from 1980 through 1990, with a low count of 3,343 fish in 1980 and a high count of 21,870 fish in 1988. The estimated wild adult return in 1991 was 8,457 (redd counts from IDFG, unpublished information).

Snake River redd counts in index areas provide the best indicator of trends and the status of wild spring/summer chinook salmon. In 1957, over 13,000 redds were counted in index areas excluding the Grande Ronde River. By 1964, the number of redds was only 8,542, including counts in Grande Ronde River. Over the next 16 years, annual counts in all areas declined steadily, reaching a minimum of 620 redds in 1980. Annual counts increased gradually over the next 8 years, reaching a peak of 3,395 redds in 1988. However, in 1989, 1990 and 1991, counts dropped to 1,008, 1,224 and 1,184, respectively.

Factors relevant to the determination of whether a "species" is threatened or endangered include current and historical abundance, population trends, distribution of fish in space and time, other information indicative of the health of the population, existing and potential threats to the species, and those efforts, if any, being made to protect the species. Nearly 95 percent of the total reduction in estimated abundance of Snake River spring/summer chinook salmon occurred prior to the mid-1900s. Over the last 30–40 years, the remaining population was further reduced. Currently, the abundance of these fish is approximately 0.5 percent of the estimated historical abundance. Furthermore, the 1991 redd count of (1,184) (index areas only) represents only 13.9 percent of the 1964 count (8,542).

Estimated escapement of wild spring/summer chinook salmon above Lower Granite Dam between 1980 and 1990 ranged from 3,343 to 21,870 fish. These fish are dispersed over a large and complex river system. In cases where significant population subdivision has occurred within the Snake River Basin, the abundance of some local populations may have declined to levels at which risks associated with inbreeding, difficulty of finding spawning mates, and other random factors are important considerations in determining the status of the spring/summer chinook salmon ESU.

There is some indication that returns of Snake River spring/summer chinook salmon may increase during the next several years. Jack (1-year ocean residence fish) returns is one of several methods used to forecast subsequent adult returns. In 1989, 2,451 Snake River spring/summer chinook salmon jacks were counted at Lower Granite Dam. The corresponding 1990 adult count was 22,048. The 1990 jack count was 352, followed by a 1991 adult count of 10,432. In 1991, 2,156 jacks returned to Lower Granite Dam. Improved jack returns in 1991 is one indication that adult returns may increase in 1992 and 1993.

Status of Snake River Fall Chinook Salmon

Historically, fall chinook salmon were widely distributed throughout the Snake River and many of its major tributaries from its confluence with the Columbia River near Pasco, Washington, upstream 615 miles (990 kilometers (km)) to Shoshone Falls, Idaho (Columbia Basin Interagency Committee 1957; Haas 1965; Fulton 1968; Van Hyning 1968; Lavier 1976). The most important spawning grounds for fall chinook salmon in the Snake River were between Huntington, Idaho (river mile (Rm) 328, river kilometer (Rkm) 527), and Auger Falls, Idaho (Rm 607, Rkm 977) Evermann 1896).

During the early 1900s, a weir was placed in the Snake River downstream of Swan Falls Dam near Ontario, Oregon, Rm 372, Rkm 599, to collect fall chinook salmon broodstock. Although only a portion of the returning fish were intercepted, more than 20 million eggs (a minimum of 4,000 females) were taken in a single year (Parkhurst 1950). This provides some indication of the distribution and large number of fall chinook salmon migrating into the upper reaches of the Snake River during this period.

Fall chinook salmon production above Rm 456, Rkm 734, was terminated in 1901 by Swan Falls Dam, which obstructed the passage of returning adults (Parkhurst 1950). Snake River fall chinook salmon abundance remained relatively stable until 1950, but declined substantially thereafter. The estimated mean number of fall chinook salmon returning annually to the Snake River decreased from 72,000 between 1928 and 1949, to 29,000 from 1950 through 1959 (Irving and Bjornn 1981). In spite of this decline in abundance, the Snake River remained the most important production area for fall chinook salmon in the Columbia River Basin through the 1950s (Fulton 1968).

The distribution of Snake River fall chinook salmon has been dramatically reduced and now represents only a fraction of its former range. The construction of Brownlee, Rm 285, Rkm 459 (1958); Oxbow, Rm 273, Rkm 439 (1961); and Hells Canyon, Rm 247, Rkm 397 (1967) Dams inundated spawning habitat and prevented access to the primary production areas of Snake River fall chinook salmon when fish passage facilities at these projects proved to be inadequate (Van Hyning 1968). Snake River fall chinook salmon habitats were further reduced with the construction of Ice Harbor, Rm 10, Rkm 16 (1961); Lower Monumental, Rm 42, Rkm 67 (1969); Little Goose, Rm 70, Rkm 113 (1970); and Lower Granite, Rm 108, Rkm 173 (1975) Dams.

For Snake River fall chinook salmon, dam counts provide one indication of the population's recent abundance. Counts at the uppermost dam affording adult fish passage averaged 12,720 at Ice Harbor from 1969 through 1974, and 610 at Lower Granite from 1975 through 1980 (ODFW 1990; Corps unpublished). However, the escapement of wild Snake River chinook salmon must be less than these figures since fish leaving the Snake River to spawn elsewhere are not accounted for in dam counts. Efforts were initiated in 1990 to estimate the number of hatchery-reared fall chinook salmon (initial returns to the Snake River were in 1983) and wild Snake River fall chinook salmon returning to Lower Granite Dam. This methodology was used to estimate wild and hatchery fall chinook salmon returns for the period 1983 through 1989, recognizing that site-specific straying rates were not calculable prior to 1990 (WDF 1991a). Estimates of wild Snake River fall chinook salmon escapement to Lower Granite Dam varied from 428 adults in 1983, to 295 in 1989, to 78 in 1990. Wild escapement in 1991 was estimated to be 318 (WDF 1991b).

Fall chinook salmon redds observed over the remaining 102 miles (165 km) of the Snake River available to fall chinook salmon for the period 1987 through 1991 were 66, 57, 58, 37, and 32 respectively (WDF 1991c).

Summary of Factors Affecting the Species

The ESA requires a determination whether a species is threatened or endangered because of any of the five factors identified in section 4(a)(1). These determinations are based on the factors reports for the Snake River spring/summer and fall chinook salmon, the proposed rules, and comments on the aforementioned documents. A brief description of these factors, for both species, follows.

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Hydropower development has resulted in: Blockage and inundation of habitat; turbine-related mortality of juvenile fish; increased delay of juvenile migration through the Snake and Columbia Rivers; increased predation on juvenile salmon in reservoirs; and increased delay of adults on their way to spawning grounds. Water withdrawal and storage, irrigation diversions, siltation and pollution from sewage, farming, grazing, logging, and mining have also degraded the Snake River spring/summer and fall chinook salmon's habitat.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Historically, combined ocean and river harvest rates of Snake River spring/summer chinook salmon exceeded 80 and sometimes 90 percent (Ricker 1959). However, current ocean and river harvest levels have been greatly curtailed in the commercial, recreational, and Indian fisheries due to low escapements and efforts to protect these runs. The majority of current harvest occurs in the Columbia River net fisheries. Some harvest also occurs in Columbia River recreational fisheries (Berkson 1991). Columbia River fisheries directed toward other species can also impact spring/summer chinook salmon (ODFW and WDF 1989).

The total exploitation rate for Lyons Ferry Hatchery fall chinook salmon, which are assumed to have the same distribution as wild Snake River fall chinook salmon, is estimated to be 69 percent (CRITFC 1991). These harvest rates may be higher than Snake River fall chinook salmon can sustain.

C. Disease or Predation

Both spring/summer and fall chinook salmon are exposed to numerous bacterial, protozoan, viral, and parasitic organisms; however, these organisms' impacts on Snake River spring/summer, and fall chinook salmon are largely unknown.

Predators, particularly northern squawfish, *Ptychocheilus oregonensis*, and avian predator populations have increased due to hydroelectric development that created ideal foraging areas. Numerous reservoirs provide preferred habitats, and turbulent conditions in turbines, dam bypasses, and spillways have increased predator success by stunning or disorienting passing juvenile salmon migrants.

Marine mammal numbers, especially harbor seals and California sea lions, are increasing on the West Coast and increases in predation by pinnipeds have been noted in all Northwest salmonid fisheries. For Snake River spring/summer chinook salmon, increased injuries attributable to marine mammals from a few percent annually to an average of 19.2 percent was noted at Lower Granite Dam in 1990 (Harmon 1991) and reported in the factors report. The observed incidence of such injury in 1991 declined to approximately 15 percent (Matthews personal communication). The extent to which predation is a factor causing the decline of spring/summer and fall chinook salmon is unknown.

D. Inadequacy of Existing Regulatory Mechanisms

A wide variety of Federal and state laws and programs have affected the abundance and survival of anadromous fish populations in the Columbia River. However, they have not prevented the decline of Snake River spring/summer and fall chinook salmon. Several of the more pertinent laws are summarized in the factors reports.

E. Other Natural and Manmade Factors

Drought is the principal natural condition that may have contributed to reduced spring/summer and fall chinook salmon production. Annual mean stream flows for the 1977 water year were generally the lowest on record for many streams since the late nineteenth century (Columbia River Water Management Group 1978). The 1990 water year became the fourth consecutive year of drought conditions in the Snake River Basin (Columbia River Water Management Group in press). Drought conditions also prevailed in the Snake River Basin for the 1991 water year.

Artificial propagation programs were initiated following the major decline of Snake River spring/summer chinook salmon as an effort to offset juvenile and adult passage mortality resulting from hydroelectric development. Although artificial propagation programs have maintained returns on some areas, Snake River spring/summer chinook have continued to decline. Under this circumstance of low abundance, hatchery programs have contributed to the further decline of wild Snake River spring/summer chinook salmon through the taking of fish for broodstock purposes, behavioral and genetic interactions, competition, predation and the spread of disease.

The only artificial propagation facility for Snake River fall chinook salmon (Lyons Ferry Hatchery) initiated operation following the substantial decline of the species to offset impacts resulting from the construction of hydroelectric facilities on the Lower Snake River (Lower Granite, Little Goose, Lower Monumental and Ice Harbor Dams). This facility was intended to preserve the integrity of Snake River fall chinook salmon.

Artificial propagation activities have not been a primary factor in the decline of Snake River fall chinook salmon. However, the taking of Snake River fall chinook salmon for hatchery broodstock has reduced natural escapements, and the recent straying of fall chinook salmon from other areas into the Snake River threatens the genetic integrity of wild Snake River fall chinook salmon.

Determination

Based on its assessment of available scientific and commercial information, NMFS is issuing final determinations that Snake River spring/summer chinook salmon and Snake River fall chinook salmon are ESUs or "species" under the ESA and should be listed as threatened. The ESU for Snake River spring/summer chinook salmon is defined as all natural population(s) of spring/summer chinook salmon in the mainstem Snake River and any of the following subbasins: Tucannon River, Grande Ronde River, Imnaha River, Salmon River, and Clearwater River. The natural population consists of all fish that are the progeny of naturally spawning fish. The offspring of all fish taken from the natural population after the date of listing (for example, for research or enhancement purposes) are also part of the ESU (natural population).

NMFS is now listing only the natural populations; however, it is also important to address whether any existing hatchery population is similar enough to the natural population that it can be considered part of the ESU and, therefore, potentially used in recovery efforts. In general, hatchery populations that have been substantially changed as a result of artificial propagation should not be considered part of the ESU. To address this and related issues, NMFS is developing a policy on the role of artificial propagation under the ESA for Pacific salmon, and will publish its proposed policy in the **Federal Register** for public comment. After issuing a final policy, NMFS will propose any revisions to the listed ESUs to include various existing hatchery populations, if appropriate. Pending completion of this process, NMFS is excluding from the Snake River spring/summer and fall chinook ESUs all fish in or originating from a hatchery at the time of listing.

Protective Regulations

NMFS is adopting protective measures to prohibit, with respect to Snake River spring/summer and fall chinook, taking and interstate commerce and to implement the other ESA prohibitions applicable to endangered species, along with the exceptions provided by the ESA. These prohibitions apply to all individuals of the listed "species," wherever found, including the Snake and Columbia River basins and the North Pacific Ocean. These are the same measures that were proposed for Snake River spring/summer and fall chinook and that were adopted for the threatened Sacramento River winter-run chinook salmon (50 CFR 227.21; 55 FR 46515; November 5, 1990). The protective regulations for Snake River spring/summer chinook, Snake River fall chinook, and Sacramento River winter-run chinook have been combined into one section (50 CFR 227.21) for clarity. Although the regulatory language for the Sacramento River winter-run chinook salmon has been modified to clarify that the endangered species permit provisions apply also to the threatened species, it does not result in any substantive changes to the protections or exceptions for this species.

Since NMFS does not want these restrictions to result in the interruption of ongoing research and enhancement efforts directed at Snake River chinook salmon, a temporary exception to the taking prohibitions is made for such activities. This exception applies only if an application, is submitted prior to the effective date of these regulations, and ceases upon the Assistant Administrator's rejection of the application as insufficient, upon issuance or denial of a permit, or on December 31, 1992, whichever occurs earliest.

Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the ESA include recognition, prohibitions on taking, recovery actions, and Federal agency consultation requirements. Recognition through listing promotes conservation actions by Federal and state agencies, private groups, and individuals.

For listed species, section 7(a)(2) of the ESA requires Federal agencies to ensure that activities they authorize, fund, or conduct are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may adversely affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with NMFS.

Examples of Federal actions that may affect Snake River chinook salmon include land-use management, in-river and ocean commercial and recreational fisheries, artificial propagation facilities, COE section section 404 permitting activities under the Clean Water Act, and authorized purposes of mainstem Columbia River and Snake River hydroelectric and storage projects (including hydroelectric power generation, flood control, irrigation, and navigation), COE section 10 permitting activities under the Rivers and Harbors Act, and FERC licenses for non-Federal development and operation of hydropower.

Critical Habitat

NMFS has completed its analysis of the biological status of spring/summer and fall chinook salmon in the Snake River but has not completed the analysis necessary for the designation of critical habitat. NMFS has decided to proceed with the final listing determinations now and to proceed with the designation of critical habitat in a separate rulemaking. NMFS believes that this action in consistent with the intent of the 1982 amendments to the ESA: "The Committee feels strongly, however, that where the biology relating to the status of the species is clear, it should not be denied the protection of the Act because of the inability of the Secretary to complete the work necessary to designate critical habitat." H. Rep. No. 567, 97th Cong., 2d Sess. 19 (1982).

NMFS has determined that final listing is appropriate and necessary to the conservation of Snake River spring/summer and fall chinook salmon. The prompt listing will bring the protection of the ESA into force, including the requirement that all Federal agencies consult with NMFS to ensure their actions are not likely to jeopardize the continued existence of the species. Prompt listing will result in consultations during the planning stages of certain 1992 operations and activities, and thus promote timely and effective consideration of measures to conserve Snake River spring/summer and fall chinook salmon.

Furthermore, NMFS has concluded that critical habitat is not determinable at this time because information sufficient to perform the required analysis of the impacts of the designation is lacking. NMFS recently solicited information necessary to determine critical habitat (56 FR 51684; October 15, 1991). Designation of critical habitat requires a determination of those physical and biological features that are essential to the conservation of the species and which may require special management considerations or protection. NMFS has been reviewing scientific and biological information concerning habitat requirements of Snake River spring/summer and fall chinook salmon and has been identifying activities that may adversely impact those habitats. In addition, designation of critical habitat requires the consideration of economic information. NMFS is presently gathering and analyzing economic information needed for the designation (Tuttle 1991).

Further, management considerations and protection for spring/summer and fall chinook salmon are complicated by the possibility that these measures, if developed in isolation, may not be appropriate for Snake River sockeye salmon listed as an endangered species. Thus, NMFS is planning to propose concurrently critical habitat determinations for all listed Snake River salmon stocks.

Technical Amendment

NMFS is also issuing a technical amendment to 50 CFR 227.72(e) to clarify that the exception for incidental taking in subpart D—Threatened Marine Reptiles applies only to listed species of sea turtles, and not to listed salmon species.

Classification

The 1982 amendments to the ESA (Pub. L. 97-304) in section 4(b)(1)(A) restricted the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation* v. *Andrus*, 657 F. 2d 829 (6th Cir., 1981), these decisions are excluded from the requirements of the National Environmental Policy Act.

The Conference Report on the 1982 amendments to the ESA notes that economic considerations have no relevance to determinations regarding the status of species, and that E.O. 12291 economic analysis requirements, the Regulatory Flexibility Act, and the Paperwork Reduction Act are not applicable to the listing process. Similarly, listing actions are not subject to the requirements of E.O. 12612, or the President's Memorandum of January 28, 1992.

References

The complete citations for the references used in this document can be found in one of the following:

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Washington Department of Fisheries. 1991a. Genetic Evaluation of the Lyons Ferry Hatchery Stock and Wild Snake River Fall Chinook. Summary by Craig Busack dated 15 May 1991 submitted to NMFS ESA Administrative Record for fall chinook salmon.

Washington Department of Fisheries. 1991b. Stock Composition of Fall Chinook at Lower Granite Dam. Letter from Larrie Lavoy dated 12 December 1991 submitted to NMFS ESA Administrative Record for fall chinook salmon.

Washington Department of Fisheries. 1991c. 1991 Fall Chinook Radio Telemetry and Spawning Surveys for the Snake River. Preliminary summary by Glenn Mendal dated 13 December 1991 submitted to NMFS ESA Administrative Record for fall chinook salmon.

List of Subjects in 50 CFR Part 227

Endangered and threatened species, Exports, Imports, Marine mammals, Transportation.

Dated: April 17, 1992.

Michael F. Tillman,

Deputy Assistant Administrator for Fisheries

For the reasons set out in the preamble, 50 CFR part 227 is amended as follows:

PART 227—THREATENED FISH AND WILDLIFE

1. The authority citation of part 227 continues to read as follows:

Authority: 16 U.S.C. 1531 *et seq.*

2. In § 227.4, new paragraphs (g) and (h) are added to read as follows:

§ 227.4 Enumeration of threatened species.

* * * * *

(g) Snake River spring/summer chinook salmon (*Oncorhynchus tshawytscha*). Includes all natural population(s) of spring/summer chinook salmon in the mainstream Snake River and any of the following subbasins: Tucannon River, Grande Ronde River, Imnaha River, and Salmon River.

(h) Snake River fall chinook salmon (*Oncorhynchus tshawytscha*). Includes all natural population(s) of fall chinook salmon in the mainstem Snake River and any of the following subbasins: Tucannon River, Grande Ronde River, Imnaha River, Salmon River, and Clearwater River.

3. In Subpart C, § 227.21 is revised to read as follows:

§ 227.21 Threatened salmon.

(a) *Prohibitions.* The prohibitions of section 9 of the Act (16 U.S.C. 1538) relating to endangered species apply to the threatened species of salmon listed in § 227.4 (e), (g) and (h) of this part, except as provided in paragraph (b) of this section.

(b) *Exceptions.* (1) The exceptions of section 10 of the Act (16 U.S.C. 1539) and other exceptions under the Act relating to endangered species, and the provisions of regulations issued under the Act relating to endangered species (such as 50 CFR part 222, subpart C—Endangered Fish or Wildlife Permits), also apply to the threatened species of salmon listed in § 227.4 (e), (g) and (h) of this part. This section supersedes other restrictions on the applicability of 50 CFR part 222, including, but not limited to, the restrictions specified in §§ 222.2(a) and 222.22(a).

(2) The prohibitions of paragraph (a) of this section relating to threatened species of salmon listed in § 227.4 (g) and (h) of this part do not apply to activities specified in an application for a permit for scientific purposes or to enhance the propagation or survival of the species *provided that* the application has been received by the Assistant Administrator by May 22, 1992. This exception ceases upon the Assistant Administrator's rejection of the application as insufficient, upon issuance or denial of a permit, or on December 31, 1992, whichever occurs earliest.

§ 227.72 [AMENDED]

4. In § 227.72, paragraph (e)(1) is amended by removing the words "any species listed in § 227.4" and adding, in their place, the words "any species of sea turtle listed in § 227.4 (a), (b) and (c)."

[FR Doc. 92–9370 Filed 4–21–92; 8:45 am]

BILLING CODE 3510-22-M

50 CFR Part 663

[Docket No 920403-2103]

Pacific Coast Groundfish Fishery

AGENCY: National Marine Fisheries Service (NMFS), NOAA, Commerce.

ACTION: Emergency interim rule; request for comments.

SUMMARY: The Secretary of Commerce (Secretary) issues an emergency interim rule to restrict operations in the Pacific whiting fishery. These regulations are intended to minimize the impact of the Pacific whiting fishery on Pacific salmon stocks without undue hardship to the Pacific whiting industry. This action is necessary because many Pacific salmon stocks appear to be at record low levels, and some stocks may not meet 1992 escapement goals even if no fishery were conducted.

EFFECTIVE DATES: This emergency rule is effective from April 16, 1992 at 1706 hours, e.d.t., until 2400 hours (local time) July 21, 1992, and may be extended for an additional 90 days. Comments will be accepted through May 7, 1992.

ADDRESSES: Comments on this emergency rule may be submitted to Rolland A. Schmitten, Director, Northwest Region, National Marine Fisheries Service, 7600 Sand Point Way N.E., Bin C15700, Seattle WA 98115–0070; or E. Charles Fullerton, Director, Southwest Region, National Marine Fisheries Service, 501 West Ocean Blvd., suite 4200, Long Beach, CA 90802–4213.

FOR FURTHER INFORMATION CONTACT: William L. Robinson at 206–526–6140, or Rodney R. McInnis at 310–980–4040.

SUPPLEMENTARY INFORMATION:

Background

In 1991, the Pacific whiting (whiting) fishery was completely "Americanized." The joint venture fishery (U.S. catcher vessels delivering whiting to foreign processing vessels at sea), which in the previous year had taken over 93 percent of the whiting quota, was completely displaced by a domestic at-sea catching and processing fleet. The domestic at-sea processing fleet is permitted to operate in areas that had been prohibited to foreign processing vessels south of 39° N. latitude. Those areas have been closed to foreign processing vessels due to concerns over the bycatch of salmon and rockfish and for national security reasons. In addition, domestic catcher vessels have been allowed to fish from 0-200 nautical miles (nm) offshore, whereas foreign trawl vessels could only fish seaward of 12 nm.

Whiting are found in fishable concentrations off California in the spring. The fishery follows the stock northward until it is predominantly in Canadian waters or offshore in the fall. The 1992 Pacific whiting season begins on April 15. An earlier fishery could be expected to increase effort in waters near the Cordell Bank and the Gulf of the Farallones National Marine Sanctuaries off the Coast of California, and could increase the likelihood of interception of Sacramento winter-run chinook salmon that have been listed as "threatened" under the Endangered Species Act (ESA). Chilipepper and bocaccio rockfish, which are also caught as bycatch in the whiting fishery, are found in these waters as well and used in fish meal. Otherwise, in a directed fishery for rockfish, chilipepper and bocaccio would generate a significantly higher price. In part to alleviate these concerns, an April 15 opening date was established for the whiting fishery beginning in 1992. This opening date approximates the traditional start of the fishery and was meant to maintain the historical season structure by counteracting the 1991 trend of beginning to fish for whiting early in the year and in the southernmost area of the fishery.

Although the April 15 opening date helps to reduce impacts on some salmon stocks, particularly Sacramento winter-run chinook salmon, further review of the fishery data for 1991 indicates that the bycatch of Sacramento winter run chinook and other salmon stocks, most notably Klamath River fall chinook, could be reduced further without undue hardship on the whiting fishery.

Recently completed salmon stock assessments for 1992 indicate that the abundance of Klamath River fall chinook salmon is predicted to be at a record low level and is not expected to meet the minimum escapement level or "escapement floor" of 35,000 even in the absence of all fishing. This year will mark the third consecutive year of underescapement and will thus require the Pacific Fishery Management Council (Council) to conduct a review of the depressed status of the stock to determine the cause of the stock decline and its relationship to fishing. Because of the depressed status of the Klamath River fall chinook stock, the Council is considering, for the first time, severely restrictive fishing options for the commercial and recreational salmon fisheries, one of which is a prohibition of ocean salmon fishing along a substantial portion of the Oregon and California coasts. These circumstances prompted the Council to consider further